SOCIETIES AND ACADEMIES

LONDON

Geological Society, Nov. 6.—Prof. Ramsay, F.R.S., V.P., in the chair. A Report by F. T. Gregory, Mining Land Commissioner in Queensland, on the recent discoveries of Tin-ore in that Colony. According to this report, the district in Queensland in which tin-ore has been discovered is situated about the head-waters of the Severn river and its tributaries, comprising an area of about 550 square miles. The district is described as an elevated granitic table-land intersected by ranges of abrupt hills, some attaining an elevation of about 3,000 feet above the sea. The richest deposits are found in the beds of the streams and in alluvial flats on their banks, the payable ground varying from a few yards to five chains in extent. The aggregate length of these alluvial bands is estimated at about 170 miles, the average yield per linear chain of the stream-beds at about ten tons of ore (cassiterite). Numerous small stanniferous lodes have been discovered, but only two of much importance, namely, one near Ballandean Head Station on the Severn; and another in a reef of red granite rising in the midst of metamorphic slates and sandstones at a distance of about six miles. The lodes run in parallel lines bearing about N. 50° E.; and one of them can be traced for a distance of nine or ten miles. The ore, according to Mr. Gregory and Mr. D'Oyly Aplin, is always associated with red granite, *i.e.* "the felspar a pink or red orthoclase, and the mica generally black; but when crystals of tin-ore are found *in situ*, the mica is white." The crystals of tin-ore are generally found in and along the margins of quartz threads or veins in bands of loosely aggregated granitoid rock, but are sometimes imbedded in the micaceous portions. The report concludes with some statements as to the present condition and prospects of the district as regards its population.—Observations on some of the recent Tin-ore discoveries in New England, New South Wales, by G. H. F. Ulrich. The district referred to by the author is in the most northern part of the colony of New South Wales, almost immediately adjoining the tin-region of Queensland described in the preceding report. It forms a hilly elevated plateau, having Ben Lomond for its highest point, nearly 4,000 feet above the sea-level. The predominant rocks are granite and basalt, enclosing subordinate areas composed of metamorphic slates and sandstones; the basalt has generally broken through the highest crests and points of the ranges, and spread in extensive streams over the country at the foot. The workings of the Elsmore Company, situated on the north-west side of the Macintyre river, about twelve miles E. of the township of Inverell, include a granite range of about 250 feet in height, and nearly two miles in length. The granite of the range is micaceous, with crystals of white orthoclase, and is traversed by quartz veins which contain cassiterite in fine druses, seams, and scattered crystals, and by dykes of a softer granite, consisting chiefly of mica, and with scarcely any quartz, in which cassiterite is distributed in crystals, nests, and bunches, and also in irregular veins of several inches in thickness. This granite yields lumps of pure ore up to at least 50 lbs. in weight. The quartz veins contain micaceous portions which resemble the "Greisen" of the Saxon tin mines. The deepest shaft sunk in one of the quartz veins was about 60 feet in depth. The author noticed certain minerals found in association with the tin ore, and the peculiarities of the crystalline forms presented by the latter. In conclusion the author referred to the probability that a deficiency of water may prove a great obstacle to the full development of the tin-making industry in this district, but stated that "it seems not unlikely that the production of tin ore from this part of Australia will reach, if not surpass, that of all the old tin-mining countries combined."—"On the included Rock-fragments of the Cambridge Upper Greensand." By W. Johnson Sollas and A. J. Jukes-Browne. The occurrence of numerous subangular fragments in the Upper Greensand formation was so far remarkable that it had already attracted the notice of two previous observers (Mr. Bonney and Mr. Seeley), who had both briefly hinted at the agency of ice. While ignorant of the suggestions of these gentlemen, the authors of this paper had been forced to the same conclusion. A descriptive list had been prepared of the most remarkable of the included fragments. The infallible signs of the Upper Greensand origin consisted in incrustations of *Plicatula sigillum*, *Ostrea vesiculosa*, and "Coprolite," without which, it was stated, the boulders would be undistinguishable from those of the overlying drift. The following generalisations were then put forward:—1. The stones are mostly subangular; some consist of friable sandstones and shales, which could not have borne even a brief journey over the ocean bed. 2. Many are of large size, especially when compared with the fine silt in which they were imbedded; the stones and silt could not have been borne along by the same marine current. 3. The stones are of various lithological characters, and might be referred to granitic, schistose, volcanic, and sedimentary rocks, probably of Silurian, Old Red Sandstones, and Carboniferous age. Such strata are not found *in situ* in the neighbourhood, and the blocks must have come from Scotland or Wales. Numerous arguments were adduced in favour of their Scottish derivation. The above considerations, that numerous rock fragments, some of which are very friable, have been brought from various localities and yet retain their angularity, were thought sufficient evidence for their transportation by ice; the majority showed no ice scratches, but the small proportion of scratched stones in the moraine matter borne away on an iceberg, and the small percentage of ice-scratched boulders in many deposits of glacial drift, show that the absence of these striæ is not inconsistent with the glacial origin of the included fragments. Besides this the stones of the Greensand consisted of rock, from which ice marks would readily have been removed by the action of water. The authors stated, however, that they had found more positive evidence in a stone which was unmistakably ice-scratched, consisting of a siliceous limestone, and preserved in the Woodwardian Museum. The fauna, so far as it proved anything, suggested a cold climate; though abundant, the species were dwarfed, in striking contrast to those of the Greensand of Southern England and the fauna of the succeeding Chalk. The authors concluded that a tongue of land separated the Upper Greensand sea into two basins, the northern of which received icebergs from the Scottish-Scandinavian chain; the climate of this was cold, that of the southern basin much warmer.

PARIS

Academy of Sciences, Nov. 4.—M. Faye, President.—The first paper read was by M. Becquerel, on the solar origin of atmospheric electricity. A large portion of the paper was preliminary, and contains a sketch of modern solar discoveries; the subject is to be continued.—M. Pasteur then read a note on the production of alcohol by fruits. His remarks referred to some experiments by M. Lechartier, who has found that alcohol is developed in fruit on simple keeping.—Another note by the same author followed, replying to some of M. Fremy's late assertions. To this M. Fremy replied, and was immediately answered by M. Pasteur, who demanded the appointment of a commission to examine his experiments, when M. Fremy arose and proposed that he, M. Pasteur, and M. Trécul should work in common. M. Dumas then stated that the Academy should grant the request of M. Pasteur. M. Wurtz supported M. Pasteur's demand, and M. Pasteur then asserted that he would not agree to M. Fremy's proposed joint work, and urged the appointment of a commission to examine the contested experimental evidence. After this the discussion dropped.—Another of MM. Favre and Valson's papers on crystalline dissociation was then read. The authors described a new method for the investigation of the "coercive" action of a salt on water at any temperature.—M. Faye then read a paper on Mr. L. Rutherfurd's lunar photographs.—Next came a report on a memoir by Dr. Dufossé on the noises and sounds which the sea and freshwater fish of Europe can hear. The report recommended that the thanks of the Academy should be awarded to the Doctor for his discoveries. M. Max Marie then presented a paper on the elementary theory of Integrals of any order, and of their periods. M. Becquerel then presented an addendum to M. E. Jannettaz's late note on the coloured rings of gypsum. The note by M. Jannettaz contained some additions to and corrections of his former communication.—M. D. Colladon then presented a note on the effects of lightning on trees, which was referred to the Lightning Conductor Commission. MM. Becquerel and Edm. Becquerel made some remarks on this paper in relation to the change in colour of stricken trees and flowers.—M. C. Dareste's third part of his paper on the osteological types of the osseous fishes followed, and was sent to the Anatomical and Zoological section.—M. Sainte-Claire-Deville then presented a memoir by M. F. Fouqué on some new processes for the proximate analysis of minerals, and on their application to the lavas of the late eruption of Santorin.—The *Phylloxera* Commission next received a proposal from M. de Wissocq, proposing calcic sulphide and hydrosulphuric acid as remedies for the diseased vines.—M.

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Yvon Villarceau then presented the elements and ephemerides of the planet 125, calculated by M. G. Leveau. This planet was discovered by M. Henry at the Paris Observatory. Astronomers having powerful instruments are requested to observe it, and communicate their results, as it is exceeding difficult of observation.—M. Maurice Lévy then communicated a paper on the theory of equations of partial differences of the second order of two independent variables.—Next came a continuation of M. Th. du Moncel's paper on the accidental currents which are developed in telegraphic lines, of which one end remains insulated in air.—Next followed a note by M. P. Yvon on a photometer founded on the perception of relief, and a note on the action of a copper and cadmium couple on a solution of cadmic sulphate, by M. F. Raoult, and M. P. Havrez's paper on the formulæ for the laws of colour, and number of "Chevreulian" tints connected with the doses of different generating agents.—This long paper was followed by a note on the paces of horses, studied by the graphic method, by M. E. J. Marey. Several traces of trot and gallop movements accompanied the paper.—Mr. Grace Calvert sent a paper on the power of certain substances in stopping putrefaction and preventing protoplasmic life, which was then read, and followed by a note on the febrifugic and anteperiodic properties of the leaves of *Laurus nobilis* by M. A. Doran, and by a paper on the causes of intermittent fevers, and the means of prevention and cure, by M. E. Ferrière—M. Picot then read a paper on the "antifermentescible" properties of sodic silicate. M. Ch. Robin presented a note by M. E. Dubrueil, on the Capreolus of *Zonites Algirus*. This was followed by a note by M. Carbonnier on the reproduction and development of the telescope fish. This fish is of Chinese origin, its name being Long-tsing-ya in Chinese (*Cyprynus macrophthalmus* Bloch). M. Claude Bernard then presented a note by M. L. Ranvier, on the annular strictures and inter-annular segments of the rays and cramp-fish.—Another communication from M. Thomas on his asserted discovery of fluorine was submitted to the examination of M. Balard.—M. Le Baron Larrey presented an extract from M. Berenger-Féraud, naval surgeon-in-chief at Senegal, on the larvæ and flies (*mouches*) which are developed in the human skin. At the conclusion of the paper M. Émile Blanchard made some remarks on it as regards the Cayor fly, no specimens of which have yet reached Europe. M. Chevreul then presented a copy of M. Paul de Gasparin's work on the "Valuation of Arable Land in the Laboratory;" and after some remarks from him on M. Gasparin's discovery of phosphoric acid in the subsoil waters of the Plain of Orange, the session was adjourned.

Nov. 11.—M. Faye, President.—The first paper was by Capt. Perrier on the determination of a great geodesical base in Algeria. —The President followed with a paper on the triangulation of Algeria for the new military map of the province.—M. Becquerel then read the second part of his paper on the solar origin of atmospheric electricity. He considers that the protuberances come from solar volcanoes, and that they are charged with positive electricity.—A letter from M. Faye to the author on his last paper followed.—M. Le Verrier then read a note on the determination of the secular variations of the elements of the four planets —Jupiter, Saturn, Uranus, and Neptune.—Next came a paper by M. Trécul on the origin of the lactic and alcoholic ferments. The author is very severe on M. Pasteur, who, he states, if 999 experiments are favourable to spontaneous generation and one against it, adopts the one and rejects the 999. This, of course, drew a reply from M. Pasteur, and his reply an answer from M. Trécul.—M. Pasteur then read a note on M. Fremy's paper read at the session of Nov. 4. M. Fremy answered M. Pasteur's criticisms, and M. Pasteur in a few words of answer again demanded a commission of inquiry.—M. Dareste then presented the fourth part of his researches on the osseous fishes, after which two papers on aerostation, by M. Hopin and M. Lamole respectively, were sent to the commission on that subject. —MM. Paul and Prosper Henry then announced the discovery at Paris, on the night of November 5 and 6, of two planets—126 and 127 of the 11th and 11·5 magnitude respectively; and M. Yvon Villarceau then read a letter on the two planets by M. Stephan, who had received information and observed them at Marseilles.—Next came a paper by M. H. Durrande on the acceleration in the displacement of a system of points which remains homographic with itself. At the conclusion of this came a paper on "Chloride of Lime" (bleaching powder), by M. J. Kolb. The author gives a method of valuation of this important commercial product.—M. Balard then presented M. Scheurer-Kestner's note on the loss of sodium in the preparation of soda-ash by Le Blanc's process. The author decides that the loss occurs in the "waste," and augments with the excess of lime compounds.—M. Wurtz presented a note by M. G. Bouchardat on the neutral combinations of Mannite and its hydrates. —M. L. de Saint-Martin presented some researches on Santonin.—This was followed by MM. Legros and Onimus, with experimental researches on the physiology of the pneumogastric nerve; and by an account of "Experimental Researches on the Functions of the Brain," by M. E. Fournie.—M. Brogniart then presented MM. Renault and Grand'Eury's paper on the Fossil Botany of the *Dictyoxylon* and its specific attributes.—M. Béchamp then gave an account of some researches on the function and transformation of mildews.—M. Pasteur presented a note by MM. G. Lechartier and F. Bellamy on the "Fermentation of Fruits."—M. A. Gaudin next read a note on "Some arguments necessary to clear up the fermentation question;" after which came a note by M. A. Leclerc on the Estimation of Manganese in soils and vegetables. After some observations on the geometric markings of microscopic algæ from M. J. Girard the session was adjourned.

DIARY

THURSDAY, November 21.

Royal Society, at 8.30.—On the Mechanical Conditions of the Respiratory Movements in Man: Dr. A. Ransome.—Further Experiments on the more Important Physiological Changes induced in the Human Economy by Change of Climate: Dr. Rattray.—On Linear Differential Equations, VI. and VII.: W. H. L. Russell, F.R.S.

Linnean Society, at 8.—On the *Compositæ* of Bengal: C. B. Clarke, F.L.S.—On Diversity of Evolution under one set of External Conditions: Rev. J. T. Gulick.

Chemical Society, at 8.—On some New Derivations of Anthraflavic Acid: W. H. Perkin.

SUNDAY, November 24.

Sunday Lecture Society, at 4.—On the Renaissance of Modern Europe; a Review of the Scientific, Artistic, Rationalistic, Revolutionary Revival, dating from the 15th Century: J. Addington Symonds.

MONDAY, November 25.

Royal Geographical Society, at 8.30.

TUESDAY, November 26.

London Institution, at 4.—On Elementary Physiology: Prof. Rutherford.

WEDNESDAY, November 27.

Royal Society of Literature, at 8.30.—On Difficult Words and Phrases occurring in Shakespeare's Works, Part I.: Dr. C. M. Ingleby.

Society of Arts, at 8.—On Technical Education, and the Means of Promoting it: Thomas Webster.

London Institution, at 7.—On Spontaneous Movements in Plants: A. W. Bennett.

Society of Telegraphic Engineers, at 8.—On Lightning; W. H. Preece.

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Errata.—Vol. vii. p. 14: in the article on "Scottish Coal Fields," for "Prof. Geikie" read "Mr. James Geikie."—Vol. vii. p. 15, col. 1: in note on lecture arrangements at Royal Institution, the second announcement should have read thus—"Twelve Lectures on the Forces and Motions of the Body, by Prof. Rutherford, F.R.S.E.; Three Lectures on Oxidation, by Dr. Debus," &c.

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